



6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

EPA-HQ-OAR-2012-0036; FRL-9636-4

Proposed Approval of the Central Characterization Project's Remote-Handled Transuranic Waste Characterization Program at the Savannah River Site

AGENCY: Environmental Protection Agency.

ACTION: Notice of availability; opening of public comment period.

SUMMARY: The Environmental Protection Agency (EPA) is announcing the availability of, and soliciting public comments for 45 days on, the proposed approval of the radioactive, remote-handled (RH), transuranic (TRU) waste characterization program implemented by the Central Characterization Project (CCP) at the Savannah River Site (SRS) in Aiken, South Carolina. This waste is intended for disposal at the Waste Isolation Pilot Plant (WIPP) in New Mexico.

In accordance with the WIPP Compliance Criteria, EPA evaluated the characterization of RH TRU debris waste from SRS-CCP during an inspection on August 30 - September 1, 2011, with a follow-up inspection on December 6–7, 2011, at SRS. Using the systems and processes developed as part of the U.S. Department of Energy's (DOE's) Carlsbad Field Office (CBFO) program, EPA verified whether DOE could adequately characterize RH TRU waste consistent with the Compliance Criteria. The results of EPA's evaluation of SRS-CCP's RH program and its proposed approval are described in the Agency's inspection report, which is available for review in the public dockets listed in **ADDRESSES**. EPA will consider public comments received on or before the due date mentioned in **DATES**.

This notice summarizes the waste characterization processes evaluated by EPA and EPA's proposed approval. As required by the 40 CFR 194.8, at the end of a 45-day comment period EPA will evaluate all relevant public comments and revise the inspection report as necessary. If appropriate, the Agency will then issue a final approval letter and inspection report.

DATES: Comments must be received on or before [insert date 45 days after publication in the Federal Register].

ADDRESSES: Submit your comments, identified by Docket ID No. **EPA-HQ-OAR-2012-0036**, by one of the following methods:

- www.regulations.gov: Follow the on-line instructions for submitting comments.
- Email: to a-and-r-docket@epa.gov
- Fax: 202-566-1741
- Mail: Air and Radiation Docket and Information Center, Environmental Protection Agency, Mailcode: 6102T, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

Instructions: Direct your comments to Attn: Docket ID No. **EPA-HQ-OAR-2012-0036**.

The Agency's policy is that all comments received will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through www.regulations.gov or e-mail. The www.regulations.gov website is

an “anonymous access” system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through www.regulations.gov your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA’s public docket visit the EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>.

Docket: All documents in the docket are listed in the www.regulations.gov index.

Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically at www.regulations.gov. As provided in EPA’s regulations at 40 CFR Part 2, and in accordance with normal EPA docket procedures, if copies of any docket materials are requested, a reasonable fee may be charged for photocopying.

FOR FURTHER INFORMATION CONTACT: Rajani Joglekar or Ed Feltsorn,
Radiation Protection Division, Center for Waste Management and Regulation, Mail Code 6608J, U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, Washington,

DC, 20460; telephone number: 202-343-9601; fax number: 202-343-2305; e-mail address: <joglekar.rajani@epa.gov> or <feltcorn.ed@epa.gov>.

SUPPLEMENTARY INFORMATION:

I. General Information

A. What Should I Consider as I Prepare My Comments for EPA?

1. *Submitting CBI.* Do not submit this information to EPA through www.regulations.gov or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

2. Tips for Preparing Your Comments. When submitting comments, remember to:

- Identify the rulemaking by docket number and other identifying information (subject heading, Federal Register date and page number).
- Follow directions - The agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.
- Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or

data that you used.

- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the comment period deadline identified.

II. Background

DOE is developing the WIPP, near Carlsbad in southeastern New Mexico, as a deep geologic repository for disposal of TRU radioactive waste. As defined by the WIPP Land Withdrawal Act (LWA) of 1992 (Pub. L. No. 102-579), as amended (Pub. L. No. 104-201), TRU waste consists of materials that have atomic numbers greater than 92 (with half-lives greater than twenty years), in concentrations greater than 100 nanocuries of alpha-emitting TRU isotopes per gram of waste. Much of the existing TRU waste consists of items contaminated during the production of nuclear weapons, such as rags, equipment, tools, and sludges.

TRU waste is itself divided into two categories, based on its level of radioactivity. Contact-handled (CH) TRU waste accounts for about 97 percent of the volume of TRU waste currently destined for the WIPP. It is packaged in 55-gallon metal drums or in metal boxes and can be handled under controlled conditions without any shielding beyond the container itself. The maximum radiation dose at the surface of a CH TRU

waste container is 200 millirems per hour. CH waste primarily emits alpha particles that are easily shielded by a sheet of paper or the outer layer of a person's skin.

Remote-handled (RH) TRU waste emits more radiation than CH TRU waste and must therefore be both handled and transported in shielded casks. Surface radiation levels of unshielded containers of remote-handled transuranic waste exceed 200 millirems per hour. RH waste primarily emits gamma radiation, which is very penetrating and requires concrete, lead or steel to block it.

On May 13, 1998, EPA issued a final certification of compliance for the WIPP facility. The final rule was published in the *Federal Register* on May 18, 1998 (63 FR 27354). The Agency officially recertified WIPP on November 18, 2010 (75 FR 70584). Both the certification and recertification determined that WIPP complies with the Agency's radioactive waste disposal regulations at 40 CFR part 191, subparts B and C, and is therefore safe to contain TRU waste.

The final WIPP certification decision includes conditions that (1) prohibit shipment of TRU waste for disposal at WIPP from any site other than Los Alamos National Laboratories (LANL) until EPA determines that the site has established and executed a quality assurance program, in accordance with 194.22(a)(2)(i), 194.24(c)(3) and 194.24(c)(5) for waste characterization activities and assumptions (Condition 2 of Appendix A to 40 CFR Part 194); and (2) (with the exception of specific, limited waste streams and equipment at LANL) prohibit shipment of TRU waste for disposal at WIPP (from LANL or any other site) until EPA has approved the procedures developed to comply with the waste characterization requirements of 194.22(c)(4) (Condition 3 of Appendix A to 40 CFR Part 194). The Agency's approval process for waste generator

sites is described in 194.8 (revised July 2004).

Condition 3 of the WIPP Certification Decision requires EPA to conduct independent inspections at DOE's waste generator/storage sites of their TRU waste characterization capabilities before approving their program and the waste for disposal at the WIPP. The Agency's inspection and approval process gives EPA (a) discretion in establishing technical priorities, (b) the ability to accommodate variation in the site's waste characterization capabilities, and (c) flexibility in scheduling site waste characterization inspections.

As described in Section 194.8(b), EPA's baseline inspections evaluate each waste characterization process component (equipment, procedures and personnel training/experience) for its adequacy and appropriateness in characterizing TRU waste destined for disposal at WIPP. During an inspection, the site demonstrates its capabilities to characterize TRU waste(s) and its ability to comply with the regulatory limits and tracking requirements under 194.24. A baseline inspection may describe any limitations on approved waste streams or waste characterization processes [194.8(b)(2)(iii)]. In addition, a baseline inspection approval must specify what subsequent waste characterization program changes or expansion should be reported to EPA [194.8(b)(4)]. The Agency is required to assign a Tier 1 (T1) or Tier 2 (T2) designation to the reportable changes depending on their potential impact on data quality. A T1 designation requires that the site notify EPA of proposed changes to the approved components of an individual waste characterization process (such as radioassay equipment or personnel), and that EPA approve the change before it is implemented. A waste characterization element with a T2 designation allows the site to implement changes to the approved

components of individual waste characterization processes (such as visual examination procedures) but requires EPA notification. The Agency may choose to inspect the site to evaluate technical adequacy before approval. EPA inspections conducted to evaluate T1 or T2 changes are follow-up inspections under the authority of 194.24(h). In addition to the follow-up inspections, EPA may opt to conduct continued compliance inspections at TRU waste sites with a baseline approval under the authority of 194.24(h).

The site inspection and approval process outlined in 194.8 requires EPA to issue a Federal Register notice proposing the baseline compliance decision, docket the inspection report for public review, and seek public comment on the proposed decision for a period of 45 days. The report must describe the waste characterization processes EPA inspected at the site, as well as their compliance with 194.24 requirements.

III. Proposed Baseline Compliance Decision

EPA has performed a baseline inspection of RH TRU waste characterization activities at SRS-CCP (EPA Inspection No. EPA-SRS-CCP-RH-08.11-8). The purpose of EPA's inspection was to verify that the waste characterization program implemented at SRS-CCP for characterizing RH TRU, retrievably-stored, debris waste is technically adequate and meets the regulatory requirements at 40 CFR 194.24.

The inspection took place from August 30 - September 1, 2011, with a follow-up inspection on December 6–7, 2011, at SRS. The Agency's inspection team evaluated: the use of acceptable knowledge (AK); dose-to-curie (DTC) in conjunction with radionuclide-specific scaling factors derived in part by measurement with the In Situ Object Counting System (ISOCS) and historical assays of containers from the CH counterpart waste stream at SRS (SRW027-FB-Pre-86-C); and real-time radiography (RTR) to confirm the physical form and waste material parameters (WMP) of waste drums.

The inspection's scope included one RH TRU waste stream, SR-RH-FBL.01, consisting of debris waste from the FB-Line at SRS. This waste was generated by glovebox operations, decontamination, housekeeping, maintenance and construction activities conducted from 1975 through 1984. EPA proposes to approve the SRS-CCP waste characterization program implemented to characterize RH debris waste from Waste Stream SR-RH-FBL.01 that was evaluated during this baseline inspection and is documented in this report. The proposed approval includes the following:

- (1) The AK process for RH TRU debris waste streams that have companion¹ CH debris waste streams
- (2) The radiological characterization of eight drums in Waste Stream SR-RH-FBL.01 using the ORTEC/ISOCS prior to the baseline inspection and historical assays of companion CH debris waste streams for assigning radionuclide values, according to the limitations discussed in Section 8.2 of the inspection report
- (3) The radiological characterization process using DTC and scaling factors generated through use of the Mobile Characterization Services (MCS)/ISOCS and historical assays of companion CH debris waste streams for assigning radionuclide values for RH waste, as documented in CCP-AK-SRS-581, Revision 1, supported by the calculation packages (or equivalent documentation), and subject to the limitations discussed in Section 8.2 of this report
- (4) The RTR process to identify WMPs and the physical form of RH TRU debris waste

Once this approval is final, SRS-CCP's RH TRU waste characterization program will be able to characterize RH waste from Waste Stream SR-RH-FBL.01 in accordance with the conditions and restrictions discussed in the accompanying inspection report and summarized in Table 1 below. After EPA finalizes the SRS-CCP RH waste characterization program approval, additional debris waste stream(s) having a companion

¹ A companion CH waste stream has the same summary category group, same waste stream definition, and same radiological and physical properties as the subject RH waste stream. In this case, the only difference between containers in the companion CH waste stream and those in the subject RH waste stream is the waste's external dose rate; i.e., less than or greater than 200 millirem per hour (mrem/hr), which makes the waste CH or RH, respectively.

CH waste stream(s) may be disposed of at WIPP provided that an approved radiological scaling factor development process is used.

Further, the MCS/ISOCS use is limited to the generation of specific radionuclide ratios (scaling factors), i.e., the activity of plutonium (Pu) isotopes plutonium-239 (^{239}Pu), plutonium-240 (^{240}Pu) and plutonium-241 (^{241}Pu) to americium-241 (^{241}Am). Its use for direct quantification of any radionuclides including plutonium-238 is prohibited.

A Tier 1 change approval is necessary when:

- the radiological scaling factors development process used for characterizing RH debris waste differs from the process approved;
- an RH TRU debris waste stream characterized for WIPP disposal does not have a companion CH waste stream;
- an RH TRU non-debris waste stream from a summary category group solids (S3000) or soils and gravel (S4000) is characterized for WIPP disposal; and
- using the ORTEC/ISOCS for RH debris waste characterization in the future.

Table 1 below (which is outlined in the inspection report) identifies the proposed tiering changes based on the baseline inspection elements.

Table 1. Tiering of RH TRU Waste Characterization Processes Implemented by SRS-CCP

(Based on August 20–September 1, 2011, and December 6–7, 2011, Baseline Inspection)

RH Waste Characterization Process Elements	SRS-CCP RH Waste Characterization Process – T1 Changes	SRS-CCP RH Waste Characterization Process – T2 Changes*
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**Table 1. Tiering of RH TRU Waste Characterization Processes
Implemented by SRS-CCP**

**(Based on August 20–September 1, 2011, and December 6–7, 2011, Baseline
Inspection)**

RH Waste Characterization Process Elements	SRS-CCP RH Waste Characterization Process – T1 Changes	SRS-CCP RH Waste Characterization Process – T2 Changes*
Acceptable Knowledge	<p>Any new RH S3000 or S4000 waste stream</p> <p>Any new RH S5000 waste stream that <u>does not</u> have a companion CH waste stream.</p> <p>Substantive modification(s)** to CCP-AK-SRS-580 or CCP-AK-SRS-582 that have the potential to affect the characterization process (AK2, AK6)</p>	<p>Any new RH S5000 waste stream that <u>does</u> have a companion CH waste stream</p> <p>Notification to EPA:</p> <ul style="list-style-type: none"> • Upon completion of revisions to CCP-AK-SRS-580, CCP-AK-SRS-582, CCP-TP-005, or nonconformance and corrective action procedures that require CBFO approval*** (AK2, AK5, AK6) • Upon completion of revisions to any CCP-TP-005 attachments, including when Attachment 4 is generated to reflect the updated AKSR Source Document Reference List (AK5, AK11) • When the final or revised WSPF, CIS, CRR and related attachments are available and upon completion of any subsequent revisions to these documents (AK10) • When AK accuracy reports are completed, prepared annually at a minimum (AK11) • When Add Container Memoranda have been prepared (AK5) • When additional discrepancy resolution reports and nonconformance reports have been prepared (AK4)
Radiological Characterization, including Dose-to-Curie	<p>Use of the MCS/ISOCS to provide any information other than the relative determinations of ²³⁹Pu, ²⁴⁰Pu and ²⁴¹Pu to ²⁴¹Am (RC2)</p> <p>Future use of the ORTEC/ISOCS for any RH TRU waste (RC2)</p> <p>Application of a new scaling factor processes for isotopic determination other than those documented in CCP-AK-SRS-581, Revision 1 (applies to new RH waste streams and to the addition of containers to an approved waste stream) (RC1, RC4, RC5)</p> <p>Substantive modification(s)** to CCP-TP-504 or</p>	<p>Any new RH waste stream characterized using an approved scaling factor process for isotopic determination</p> <p>Notification to EPA upon completion of revisions to CCP-AK-SRS-581 or CCP-TP-504 that require CBFO approval*** (RC1, RC5)</p> <p>Notification to EPA when calculation package(s) CCP-SRS-44, or equivalent record(s), are available</p>

Table 1. Tiering of RH TRU Waste Characterization Processes Implemented by SRS-CCP

(Based on August 20–September 1, 2011, and December 6–7, 2011, Baseline Inspection)

RH Waste Characterization Process Elements	SRS-CCP RH Waste Characterization Process – T1 Changes	SRS-CCP RH Waste Characterization Process – T2 Changes*
	CCP-AK-SRS-581 that have the potential to affect the characterization process (RC4, RC5)	
Real-Time Radiography	RTR by any new process	Notification to EPA upon completion of changes to RTR procedure(s) that require CBFO approval*** (RTR1) Addition of a new SCG to any approved RTR process (RTR2)

* SRS-CCP will report all T2 changes to EPA every three months.

** *Substantive modification* refers to a change with the potential to affect SRS-CCP’s RH waste characterization process; e.g., the use of an inherently different type of measurement instrument or the use of probes not described in CCP-TP-504, excluding changes related solely to safety or to address administrative concerns.

*** Notification to EPA is not necessary when document updates are editorial in nature or are required solely to address administrative concerns.

IV. Availability of the Baseline Inspection Report for Public Comment

EPA has placed the report discussing the results of the Agency’s inspection of the SRS-CCP Site in the public docket as described in **ADDRESSES**. In accordance with 40 CFR 194.8, EPA is providing the public 45 days to comment on these documents. The Agency requests comments on the proposed approval decision, as described in the inspection report. EPA will accept public comment on this notice and supplemental information as described in **Section 1** above. The Agency will not make a determination of compliance before the 45-day comment period ends. At the end of the public comment period, EPA will evaluate all relevant public comments and revise the inspection report as necessary. If appropriate, the Agency will then issue a final approval letter and

inspection report, both of which will be posted on the WIPP website.

Information on the certification decision is filed in the official EPA Air Docket, Docket No. A-93-02 and is available for review in Washington, DC, and at the three EPA WIPP informational docket locations in Albuquerque, Carlsbad, and Santa Fe, New Mexico. The dockets in New Mexico contain only major items from the official Air Docket in Washington, DC, plus those documents added to the official Air Docket since the October 1992 enactment of the WIPP LWA.

Signed: Jonathan D. Edwards, Acting Director
Office of Radiation and Indoor Air

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